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WAUKEGAN

WASTE DISPOSAL SITE

PROPOSAL

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WAUKEGAN WASTE DISPOSAL SITE STUDY -

B94-2975

JULY 18, 1983

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WAUKEGAN WASTE DISPOSAL SITE PROPOSAL

PHASE 1

AREA X

This phase includes the minimal work to cover the East and South perimeter slopes of the active disposal area consisting of complete clearing of brush, etc., minimal regrade to dress up the existing slopes, covering with six (6) inches of topsoil, fertilized and seeded.

Time - 1983 Cost - $110,000

PHASE 2

AREAS I,II,IX

This phase includes the following:

A. Two previous disposal areas will be regraded, recovered with top soil and seeded for permanent closure. These areas are located on the East perimeter near the beach consisting of an area East of the East side perimeter road and an area at the North East corner, directly East of the industrial canal. The work will consist of complete clearing of brush, etc., minimal regrade along the perimeter, covering with six (6) inches of topsoil, fertilized and seeded.

B. Regrade and provide topsoil and seed for the west side perimeter slope from the southwest corner (South of the papermill effluent stage 1 trough) to the North west corner (Flexboard and Transite pipe effluent flume). Provide perimeter road with cover on the slope (at approximately twenty feet above plant yard elevation) and regrade and cover the existing perimeter roads on both sides of active flexboard stage 1 trough.

C. Minimum regrade of the West dry waste pile (immediately East of pipe storage yard office and scale), provide topsoil and seed.

D. Regrade and provide topsoil and seed for the South side perimeter slope (immediately South of the South dry waste pile and papermill effluent stage 1 trough) from the Southwest corner East to the T-12 effluent pump discharge. Provide perimeter road with cover on top of the slope, and regrade and cover the existing papermill effluent stage 1 trough perimeter road.

Minimum regrade of the South and center dry waste piles, provide cover, topsoil and seed.

Time - 1984-1985 Cost - $689,000

PHASE 3

AREAS III,IV,VII

This phase will be done over a two year period and will include the following:

A. Regrade and provide topsoil and seed for a portion of the North side perimeter slope from the Northwest corner East to the North vehicle access ramp. Complete filling of the old abandoned transite pipe stage 1 trough. Provide perimeter road with cover at the top of the slope, regrade and cover at the top of the slope, regrade and cover the existing road between the North dry waste pile and the sludge dump.

B. Miminum regrade of the North dry waste pile and sludge dump, provide cover, topsoil and seed.

C. Regrade and provide topsoil and seed for the remainder of the North side perimeter slope from North vehicle access ramp to Northeast corner. Fill in open ditch at toe of slope.

D. The North berm for the mixing (Stage 2, and 8), settling and collection basins will be extended into the basins by providing additional fill to prevent seepage through these berms. This will result in the berm tops relocating to the South and the exterior berm slope reduced to one on two.

E. The North berm slope cover, seed and/or bank riprap protection on the South face could be deferred in the event that additional fill should be required and installed in a later place to prevent seepage.

F. Provide drainage system to relocate the outlet ditch discharge into the industrial canal via an underground pipe system.

G. Regrade and cover the existing collection basin and outlet ditch perimeter berms. The sand filter capability between the collection basin and outlet ditch will be maintained by the construction of a "Gabion" R rock filled wire crib on both sides of the common berm. The outlet ditch South of the collection basin will be filled in and covered. Provide cover on existing roads and berm slope protection. Provide topsoil and seed those areas between the riprap sections and the roads.

Time 1986 - 1987 Cost $ 768,600

PHASE 4
AREAS V, VI

This phase includes the following:

A. Regrade and cover the existing mixing basins berm partitions and South catch basin berms. Provide cover on existing roads between stage basins and East berm. Provide berm slope protection (riprap), and topsoil and seed between riprap sections and roads.

B. Regrade and cover the existing settling basin perimeter berms. Provide cover on existing roads (South and East berms) and berm slope protection (riprap) completely around the basin. Provide topsoil and seed those areas between the riprap sections and the roads.

C. All weather vehicular access will be provided to the active disposal pits by gravel surfacing.
Time - 1988 Cost $ 381,400.

PHASE 5
AREAS VIIIa

This phase considers the partial closure of the South active disposal site with the following areas to be left open:

A. Asbestos pit.

B. Dredge sludge drying pit.

C. East miscellaneous pit - T-12, etc.

D. The active disposal site East and South perimeter slopes are not included with this phase as they will have been completed under Phase I.

The areas that are closed will be covered with six (6) inches of topsoil, fertilized, seeded.
Time - 1989 Cost $ $ 302,000

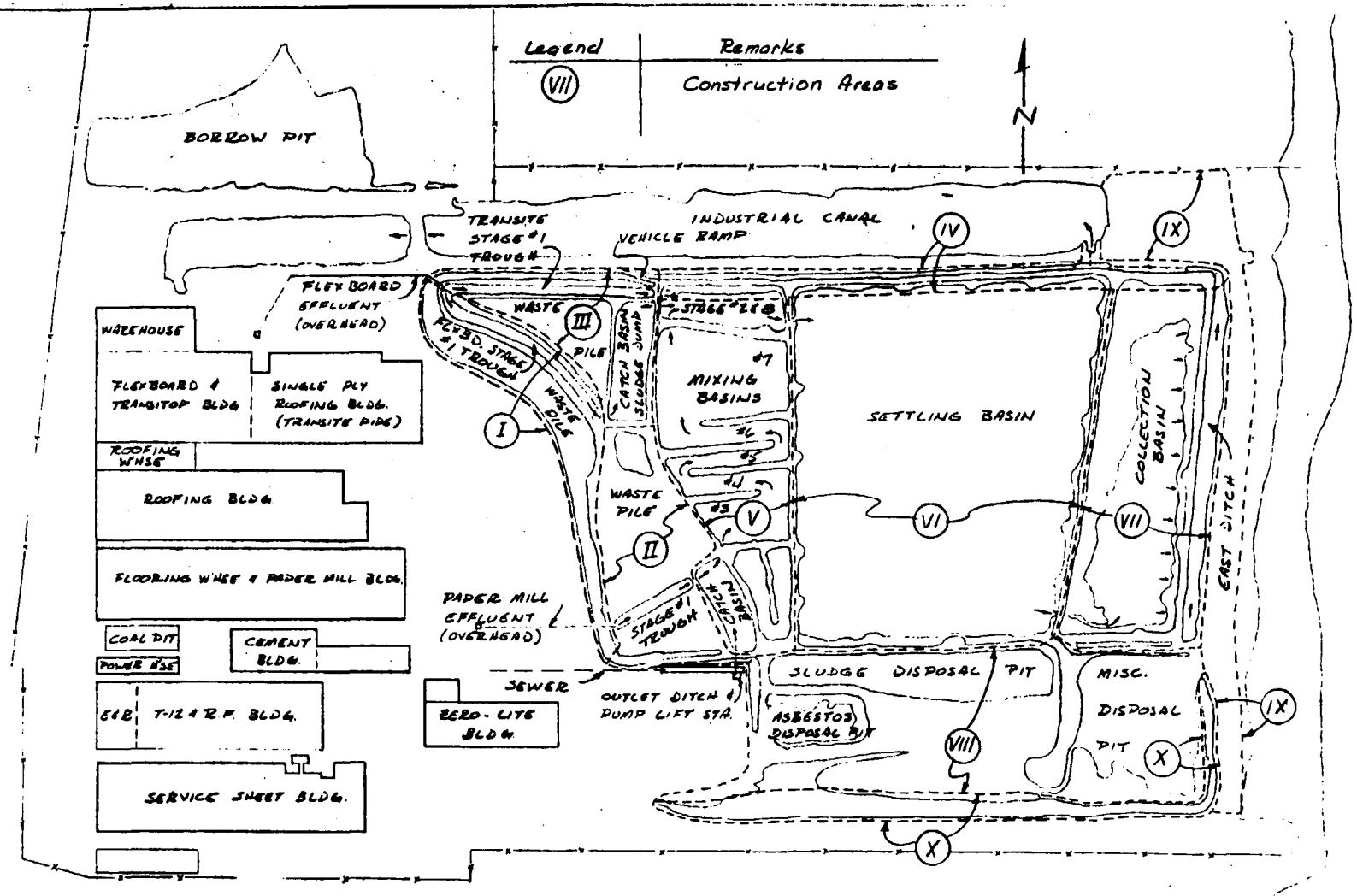
PHASE 6
AREAS VIIIb

This phase includes final closure of disposal site and calls for recovering the currently active South disposal site with six (6) inches of topsoil, fertilized and seeded.
Time - unknown Cost $ 262,000

WAUKEGAN WASTE DISPOSAL SITE PROPOSAL

PROPOSED SPENDING

Year	Areas	Cost	Accumulated Cost
1983	X	$110,000	$ 110,000
1984	I,II,IX	344,500	454,500
1985	I,II,IX	344,500	799,000
1986	III,IV,VII	384,300	1,183,300
1987	III,IV,VII	384,300	1,567,600
1988	V,VII	381,400	1,949,000
1989	VIIIa	302,000	2,251,000
Final Closure	VIIIb	262,000	2,513,000



SEP - 9 1963

LTR	REVISION	DATE	BY	CK'D
E	REVISED LEGEND & TITLE	9/6/63	JW	
F	ADDED BLDG NAMES & MISC. NOTES.	9/13/63	JW	

APPLICATION		DWN. BY	JW	6-10-63
NEXT ASSY.	PROJECT NO.	CHK. BY		
		APPR. BY		
		PROJ. ENG.	J. Whipple	6-10-63
		DIVISION		
		SCALE	None	

Corporate Engineering/Denver — Johns-Manville

PROPOSED CONSTRUCTION AREAS WASTE DISPOSAL SITE STUDY

WAUKEGAN ILL.

DISCIPLINE & SEQ. NO. CIVIL - 1

PROJ. NO. B94-2975

DWG. NO. B 36014-4

REV.

ATTACHMENTS

WAUKEGAN WASTE DISPOSAL SITE STUDY

B94-2975

NOTES TO TABULATION OF OPTIONS

JULY 18, 1983

NOTES:

1. Areas I through VII are for the work to permanently close the inactive disposal areas which basically consist of the ponds and the west side sludge and miscellaneous dump areas. The earth work computations are based upon grading slopes at 1 on 2 (vertical on horizontal) for the site perimeter, pond berms, etc. All vehicular access routes presently being used will be re-established. However, no gravel surfacing was included to provide all weather access. Pond sizes have been basically maintained and berm protection included consisting of twelve (12) inches of riprap. The operation of the filter berm between the collection basin and the east ditch will be maintained by providing a rock filled Gabion 3' deep x 5' wide along each side of the berm.

   Drainage structures shall consist of extending the present dual pipe system in the north ditch east to the east ditch. This will result in an underground pipe system from the north end of the east ditch to the outfall at the industrial canal. A french drain will be provided to intercept the water leaking through the north pond berms. This water will outfall into the industrial canal. The south ditch will be filled in after the existing pipe outlet is extended east to the south end of the east ditch.

   The inactive disposal areas will be regraded and recovered with six (6) inches of topsoil, fertilized and seeded. The roadways will be slightly undercut and filled with twenty-four (24) inches of asbestos free fill.

2. Area VIIIa considers the partial closure of the south active disposal site with the following areas to be left open:

   a. Asbestos disposal pit.
   b. Dredge sludge drying pit.
   c. East miscellaneous pit - T 12, etc.
   d. The active disposal site east and south perimeter slopes are not included with the phase, see Phase IX.
   e. All weather vehicular access will be provided to the active disposal pits by gravel surfacing.

   Those areas that are closed will be covered with six (6) inches of topsoil, fertilized and seeded.

3. Area VIIIb considers the eventual complete closure of the south active disposal site with the following considerations:

   a. Continued use of the present active disposal pits until closure.

   b. All weather vehicular access will be provided to the active disposal pits by gravel surfacing.

   Upon final closure of the south active disposal site, these areas will be covered with six (6) inches of topsoil, fertilized and seeded.

4. Area IX includes two (2) previous disposal areas that will be regraded, recovered with topsoil and seeded for permanent closure of the areas. These areas are located in the east perimeter near the beach consisting of an area east of the east side perimeter road and an area at the northeast corner directly east of the industrial canal. The work will consist of complete clearing of brush, etc., minimal regrade along the perimeter, covering with six (6) inches of topsoil, fertilized and seeded.

5. Area X includes the minimal work for permanent closure of the east and south perimeter slopes of the active disposal area consisting of complete clearing of brush, etc., minimal regrade to dress up the existing slopes, covering with six (6) inches of topsoil, fertilized and seeded.

WAUKEGAN WASTE DISPOSAL SITE STUDY

B94-2975

TECHNICAL DISCUSSIONS AND RECOMMENDATIONS

JULY 18, 1983

DISCUSSIONS:

MEETINGS

A meeting was held with the Plant personel on August 31 and September 1, 1981 to review the current operations and requirements of the waste disposal site and process water reclaim ponds.

Also at this time, a second meeting was held with D. N. Mann of Thacker Engineers and Surveyors, Ltd. to review the immediate field survey requirements to complete our initial earthwork estimates. Thacker Engineers and Surveyors were given an engineering contr to provide several vertical cross sections through perimeter slopes, outline active disposal area with spot elevations, and equate plant elevations to the United States Geodetic Survey local elevations. Several discussions and decisions between plant and World Headquarters personnel has resulted in the final report.

CONSULTANTS

The following consultants were given engineering contracts to assist Johns Manville Sales Corporation:

1. Thacker Engineers and Surveyors, Waukegan.
   Preliminary field survey and cross-sections.

2. The Sidwell Company, Chicago. Aerial survey for detailed disposal site contour map.

INFORMATION FROM CONSULTANT

The drawings and information received from Thacker Engineers and Surveyors enabled Corporate Engineering to establish a logical method to regrade and cover the inactive waste disposal areas and site perimeter slopes.

The aerial survey taken by The Sidwell Company resulted in a detailed contour map of the entire disposal site. This contour map gave Johns Manville Sales Corporation an opportunity to review the present existing disposal site configuration and a means to determine the remaining storage volume for the three (3) active disposal areas; i.e., asbestos disposal pit, dredge sludge drying pit, and the southeast miscellaneous pit.

RECOMMENDATIONS:

PHASE CONSTRUCTION

Considering the ongoing use and requirements of the active disposal site and the earthwork needed to cover these areas, and considering the inactive disposal area and perimeter slopes, it is recommended that the inactive waste pile areas, pond slopes, perimeter roads and waste site slopes be regraded and recovered for permanent closure. Upon review of the initial report and estimates, it was decided to investigate the possibilities of a multiple phase program to be completed in seven years.

This report recommends that all exposed slopes be regraded as required to a maximum of 1 on 2 (vertical on horizontal) slope. These slopes shall be covered with six (6) inches of asbestos free topsoil, fertilized and seeded. Type and amount of fertilizer should be based upon a soil analysis and the seed used should be per local County Extension Agent's recommendations.

The slope perimeter roads, existing roads through the waste pile areas, and pond perimeter roads, shall be covered with twenty-four (24) inches of asbestos free fill. This estimate is based upon all required topsoil being purchased and hauled in from off site.

For the existing inactive waste pile areas located on the west side, Areas I, II & III, it is recommended to regrade the slopes to a 1 on 2, cover with six (6) inches of topsoil, fertilized, and seeded. Care should be taken to regrade the top surfaces to prevent standing water in these seeded areas.

For bank protection of the pond berms, it is recommended they be regraded and that the slopes be 1 on 2, covered with six (6) inches of asbestos free fill and protected with twelve (12) inches of riprap. The cost estimates are based upon a five (5) foot wide strip for the small ponds (catch and mixing basins) and a twelve (12) foot wide strip for the larger ponds (settling and collection basins). The area between the pond berm roads and the riprap shall be covered with six (6) inches of topsoil, fertilized and seeded.

In order to ensure the continuing use of the sand filter on the berm common to the collection basin and outlet ditch, it is recommended that three (3) foot deep by five (5) foot wide Gabion rock filled wire cribs be installed on both sides of this berm. A polyester civil engineering fabric shall be installed on top of these cribs to prevent the migration of the proposed berm fill down into the rock.

This report recommends and allowances have been included in the estimates for twelve (12) inches of gravel surfacing for the vehicular access roads to the active disposal areas on the south side only. All vehicular access routes presently being used in Areas I through VII will be re-established. However, no gravel surfacing was included to provide all weather access.

REDUCTION OF ENGINEERING COSTS

In order to conserve on the initial engineering costs, it was decided to defer any soil borings and testing until prior to the actual design. The primary initial concern with soil stability was the added surcharge that could be imposed on the south canal berm due to the additional fill placed on the perimeter berms of the north ponds, see Scope of Work - Area IV, paragraph 2. As a result of moving the top of the perimeter berms of the north ponds to the south, and reducing the north exterior slope, the berm toe remains relatively in the same position. This will result in a minimal berm surcharge change on the south canal berm.

It was decided however to contract for more accurate details, elevations and existing contours by aerial surveying to aid in completion of the final report.

SCOPE OF WORK

This report lists below ten (10) areas which reasonably enclose various areas to consolidate and maximize the work. The order of the listing does not suggest any priority.

CONSTRUCTION AREA

1. Regrade and provide topsoil, fertilizer and seed for the west side perimeter slope from the southwest corner (south of the Papermill effluent Stage 1 trough) to the northwest corner (Flexboard effluent flume). Provide perimeter road with cover on the slope (at approximately twenty feet above plant yard elevation), and regrade and cover the existing perimeter roads on both sides of active Flexboard Stage 1 trough.

   Regrade the west dry waste pile (immediately east of pipe storage yard office and scale) provide topsoil, fertilizer, and seed.

II. Regrade and provide topsoil, fertilizer and seed for the south side perimeter slope (immediately south of the south dry waste pile and Papermill effluent Stage 1 trough) from the southwest corner east to the Plant underground sewer system (Black ditch) pump effluent discharge. Provide cover for the perimeter road on top of the slope, and regrade and and cover the existing Papermill effluent Stage 1 trough perimeter road.

   Regrade the south and center dry waste piles, provide cover, topsoil, fertilizer and seed.

III. Regrade and provide topsoil, fertilizer and seed for a portion of the north side perimeter slope from the northwest corner east to the north vehicle access ramp. Complete filling of the old abandoned Transite pipe Stage 1 trough. Provide perimeter road with cover at the top of the slope, regrade and cover the existing road between the north dry waste pile and the sludge dump.

SCOPE OF WORK - Cont'd.

CONSTRUCTION AREA

Regrade the north dry waste pile and sludge dump, provide cover, topsoil, fertilizer and seed.

IV. Regrade and provide topsoil, fertilizer and seed for the remainder of the north side perimeter slope from north vehicle access ramp to northeast corner. Provide a French drain system, and fill in open ditch at toe of slope.

The north berm for the mixing (Stage 2 and 8), settling, and collection basins will be extended into the basins by providing additional fill to prevent seepage through these berms. This will result in the berm tops relocating to the south and the exterior berm slope reduced to 1 on 2 slope.

The north berm slope cover, seed and/or pond bank riprap protection on the south face could be deferred and installed at a later date in the event that additional fill should be required to prevent seepage through the north berm.

Provide drainage system to complete the outlet ditch discharge into the industrial canal via an underground pipe system. Extend existing dual outlet pipes in north ditch east to the east ditch, and west to a new junction box at the outlet pipes from the north ditch to the industrial canal.

V. Regrade and cover the existing mixing basin berms partitions and south catch basin berms. Provide cover on existing roads between stage basins and east berm. Provide berm slope protection (riprap), and cover the area between riprap sections and roads with topsoil, fertilizer and seed.

VI. Regrade and cover the existing settling basin berms. Provide cover on existing roads between setting basin and the collection basin and sludge pit. Provide berm slope protection (riprap), and cover the area between riprap sections and roads with topsoil, fertilizer and seed. The north berm slope in included in Area IV.

VII. Regrade and cover the existing collection basin and outlet ditch perimeter berms. The sand filter capability between the collection basin and outlet ditch will be maintained by the construction of a Gabion rock filled wire crib on both sides of the common berm. The outlet ditch south of the collection basin will be filled in and covered. Provide cover on existing roads and berm slope protection. Provide topsoil, fertilizer and seed those areas between the riprap sections and the roads.

SCOPE OF WORK -Cont'd.

CONSTRUCTION AREA

VIII. Regrade and provide topsoil, fertilizer and seed for the areas not being used as an active disposal pit, etc. The cover shall extend west down the fill slope to original site grade, see Area X for the east and south perimeter slopes. Provide twelve (12) inches of gravel surface for all weather access to the existing disposal pits.

IX. Regrade and recover by providing topsoil, fertilizer, and seed for the east perimeter along the beach. This area consists of old disposal sites between the east perimeter road and the first swale towards the beach, and at the northeast corner directly east of the industrial canal.

X. Regrade and recover by providing topsoil, fertilizer and seed for the east and south perimeter slopes of the active disposal area. This phase was separated from Area VIII as it is of a size with a minimal amount of earthwork that could be completed during 1983 construction season.

TECH DISCUSS
& RECOMMEND

WAUKEGAN WASTE DISPOSAL SITE STUDY

B94-2975

STUDY REPORT

JULY 18, 1983

PURPOSE:

The scope of this project included a site visit to Waukegan to study the waste disposal site and to develop short and long range plans with estimates to:

1. Continue operating the disposal site and continued compliance with all EPA requirements.

2. Permanently close the disposal site.

A. R. Markus and J. H. Whipple visited the Waukegan Plant on August 31 and September 1, 1981 for the initial meeting with Plant personnel and to gather data for the preliminary estimates, plans, and recommndations. A. R. Markus sent a preliminary study report to F. P. LoMonaco on February 17, 1982. Corporate Engineering was subsequently requested to complete the site study which was to include the active disposal area on the south side. It was decided to obtain an accurate contour map via an aerial survey. To minimize consultant costs, the decision was made to take the aerial photographs this past fall after the vegetation had lost its foliage.

Several meetings and discussions between plant and World Headquarters personnel and the final field inspection on May 12 and 13, 1983 have resulted in this final report.

SUMMARY:

Under the present plant operations and requirements for process water reclaim pond system, it is not practical to close the Waukegan waste disposal site. The practical alternative is to continue operating the site in compliance with applicable regulations. Following this alternative will automatically prepare the site for future closure.

There are inactive areas of the disposal site which will be regraded, recovered and seeded for permanent closures of this portion of the landfill site. Areas included in inactive areas, settling ponds, and present disposal operations exceed 130 acres. Considerable earthwork will be involved in the permanent closure of these areas.

This report addresses the means and costs involved to upgrade the existing active and inactive disposal areas only. It is assumed that the process water reclaim pond system will continue to be

operational to some extent, and no estimate was included for covering any additional areas due to reduction in pond area requirements.

This report tabulates several options for either the continuing operation of the disposal site in compliance with regulations, or options for closing the site in compliance with regulations. These estimates are based upon letting to contract the entire scope of work. Any work assigned to the plant would help reduce the overall cost. Any areas where minor earth work is required could be logically assigned to plant forces.

After reviewing the existing contours in the areas of active disposal operations, a reasonable estimate as to the amount of disposal volume remaining are as follows:

		Vol.(cu.yds.)[1]
1.	Asbestos disposal pit	40,000
2.	Dredge sludge drying pit[2]	15,000
3.	S.E. misc.pit - T12, etc.	240,000

BENEFITS:

Benefits are those obtained from improved operations and environmental considerations.

RECOMMENDATIONS:

A long range, multi-phase capital expenditure plan to upgrade the existing waste disposal site is outlined below. The priority of the phases could be established in any order.

EXPENDITURES:

An adequate upgrading program to continue the present use of the disposal site will cost an estimated $2,251,000 (minimum total). A program to close this site will cost an estimated $2,513,000 (minimum total). Both of these figures are in 1983 dollars. These estimates are Items H and D respectively in the Tabulation of Options sheet.

[1] These volumes are based upon filling the respective areas up to Elev. 620 to minimize side slopes, etc. Considerably more volume is available by filling to the present south bank top at Elev. 628.

[2] This is the Mud-Cat pit immediately south of the 34.0 acre settling basin.

STUDY REPORT

TABULATION OF OPTIONS AND ESTIMATED COSTS

	Option Combinations	Inactive Areas	Active Areas	Side Slope Options (Area &/Or Phases)	Total Est. Cost ($M)
A	1, 3, 4 & 8	Complete Cover	Close & Cover	All Slopes = 3:1	2,714.0
B	1, 3, 4, 5 & 7	Complete Cover	Close & Cover	Recover south, I-VII = 3:1	2,624.0
C	1, 3, 4 & 6	Complete Cover	Close & Cover	South = 3:1, I-VII = 2:1	2,603.0
D	1, 3, 4 & 5	Complete Cover	Close & Cover	Recover south, I-VII = 2:1	*2,513.0
E	1, 2, 4 & 8	Complete Cover	Partial Closure	All slopes = 3:1	2,452.0
F	1, 2, 4, 5 & 7	Complete Cover	Partial Closure	Recover south, I-VII = 3:1	2,362.0
G	1, 2, 4 & 6	Complete Cover	Partial Closure	South = 3:1, I-VII = 2:1	2,341.0
H	1, 2, 4 & 5	Complete Cover	Partial Closure	Recover south, I-VII = 2:1	*2,251.0

*Tabulation Items D and H are the option combinations that are recommended for consideration and referenced to on Page 2.

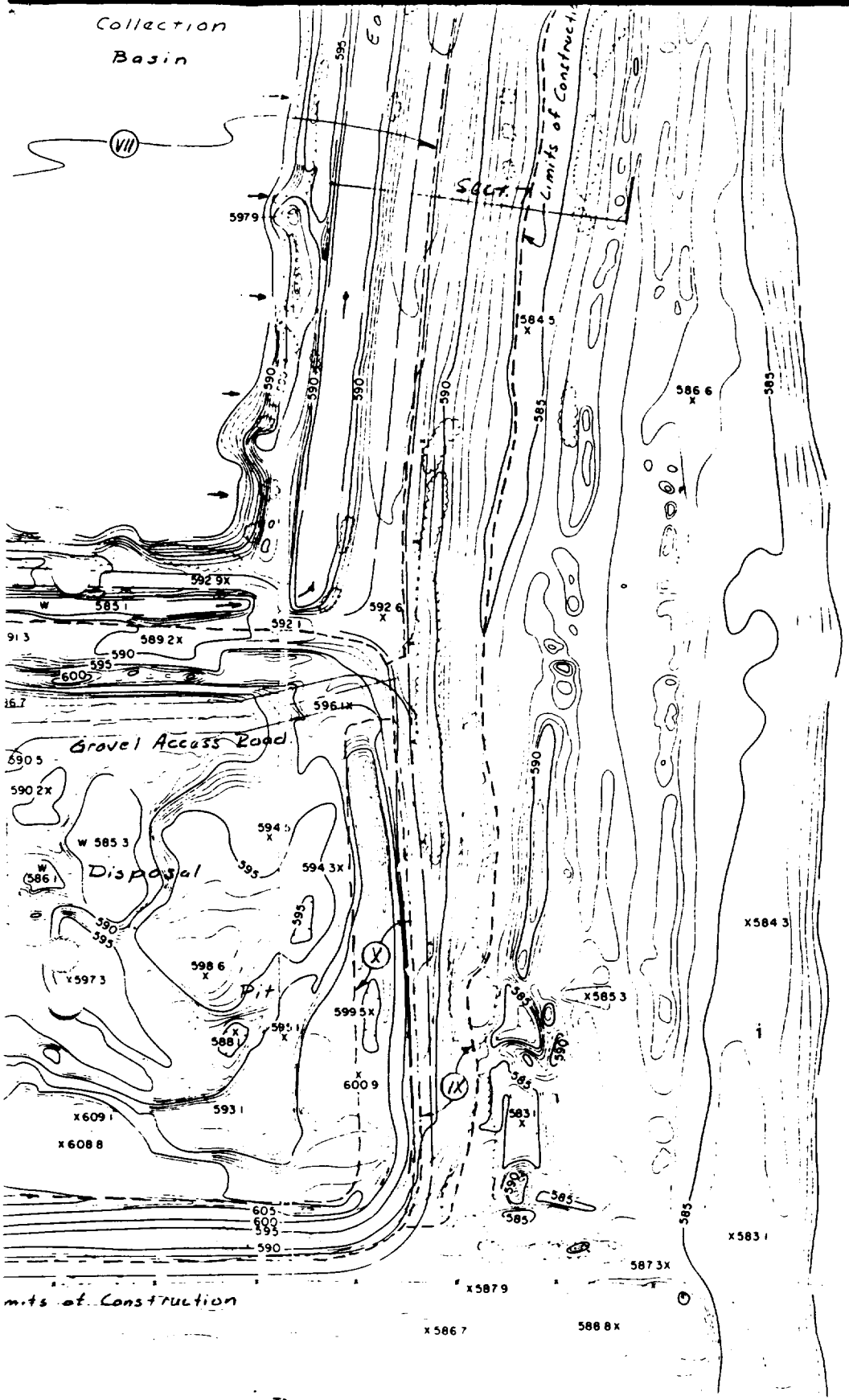
OPTION SUBTOTALS

Options	1	2	3	4	5	6	7	8
Scope of Work:	Covering Disposal Site Area Options					Slope Options		
Disposal Areas or Slope Grade	Inactive Areas, Complete	Active Area Closure		Beach Perimeter Areas, Recover	Active Area, E. & S. Slopes, Recover	Using 3:1 (H:V) slopes in lieu of 2:1 w/Areas noted		
		Partial	Complete			VIII	I - VII	I - VIII
Construction Areas	I - VII	VIIIa	VIIIb	IX	X	-	-	-
(See Note # Pg. 9)	(#1)	(#2)	(#3)	(#4)	(#5)			
Est. Cost ($M)	1,610.0	344.0	606.0	187.0	110.0	200.0	111.0	311.0

OPTIONS AND
ESTIMATED COSTS

SEPTEMBER 15, 1983 MEETING TO DISCUSS JOHNS-MANVILLE, WAUKEGAN

NAME	ADDRESS	ORGANIZATION
JACK RYAN	Waukegan	MANVILLE
LUKE MUTAW	"	"
Jim Whipple	Denver	"
SY LEVINE	1701 S FIRST AV MAYWOOD.	IEPA - DAPC
Gloria Small Moran	U.S. EPA, Region V, 230 S. Dearborn	
NORM NIEDERGANG	U.S. EPA, REGION V	
William E. Blakney	188 W. Randolph Chicago	Ill. Atty. General's office
James E. Crawford	WRQ, Denver	Manville
BILL CHILD	IEPA - LAND	SPRINFIELD
TED DENNING	IEPA - WATER MAYWOOD	
Donald L. Gimbel	IEPA Enforcement	Maywood
Chuck GRUNTMAN	ILLINOIS EPA	MAYWOOD
KENNETH BEECHEY	IEPA - 1701 1ST AVE. MAYWOOD, IL	IEPA/OE
CAROLYN HOUK	7200 SEARS TOWER, CHICAGO	SCHIFF HARDIN & WAITE - REPRESENTING MANVILLE



DROPOSED AREA CONSTRUCTION
WASTE DISPOSAL SITE STUDY

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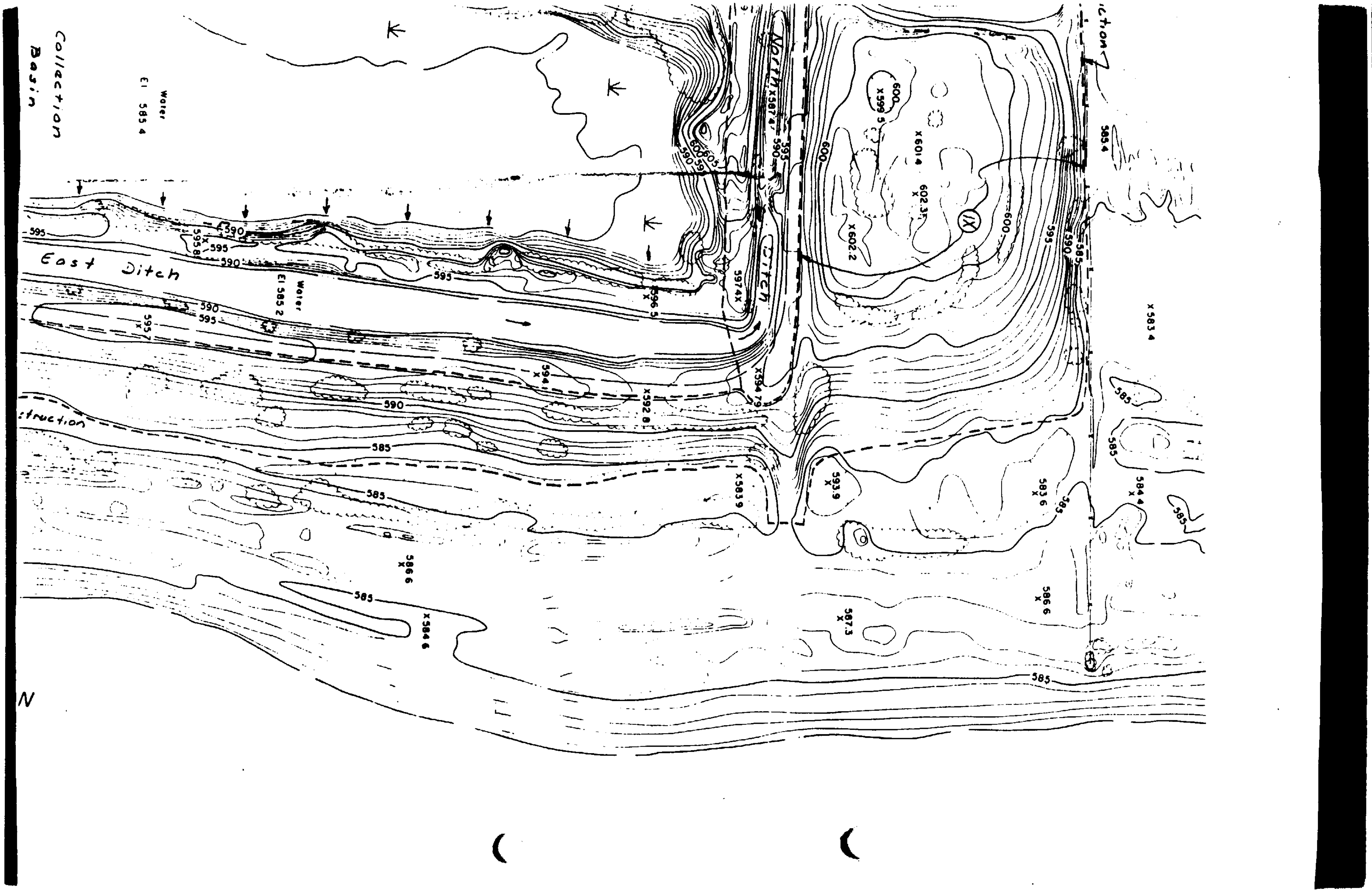
DWG No. 41829-1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East Ditch
Water
El 585.2
North Ditch
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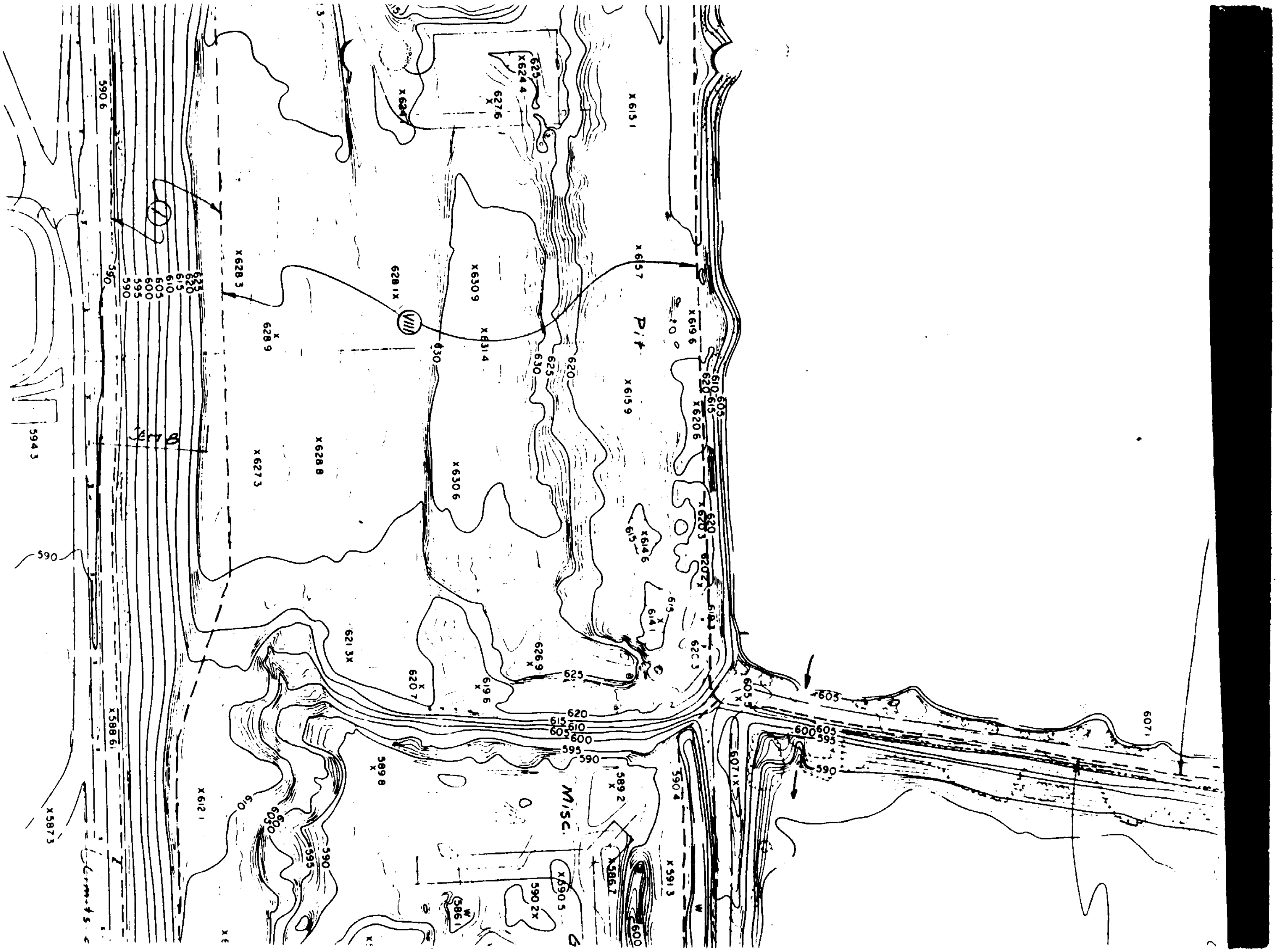
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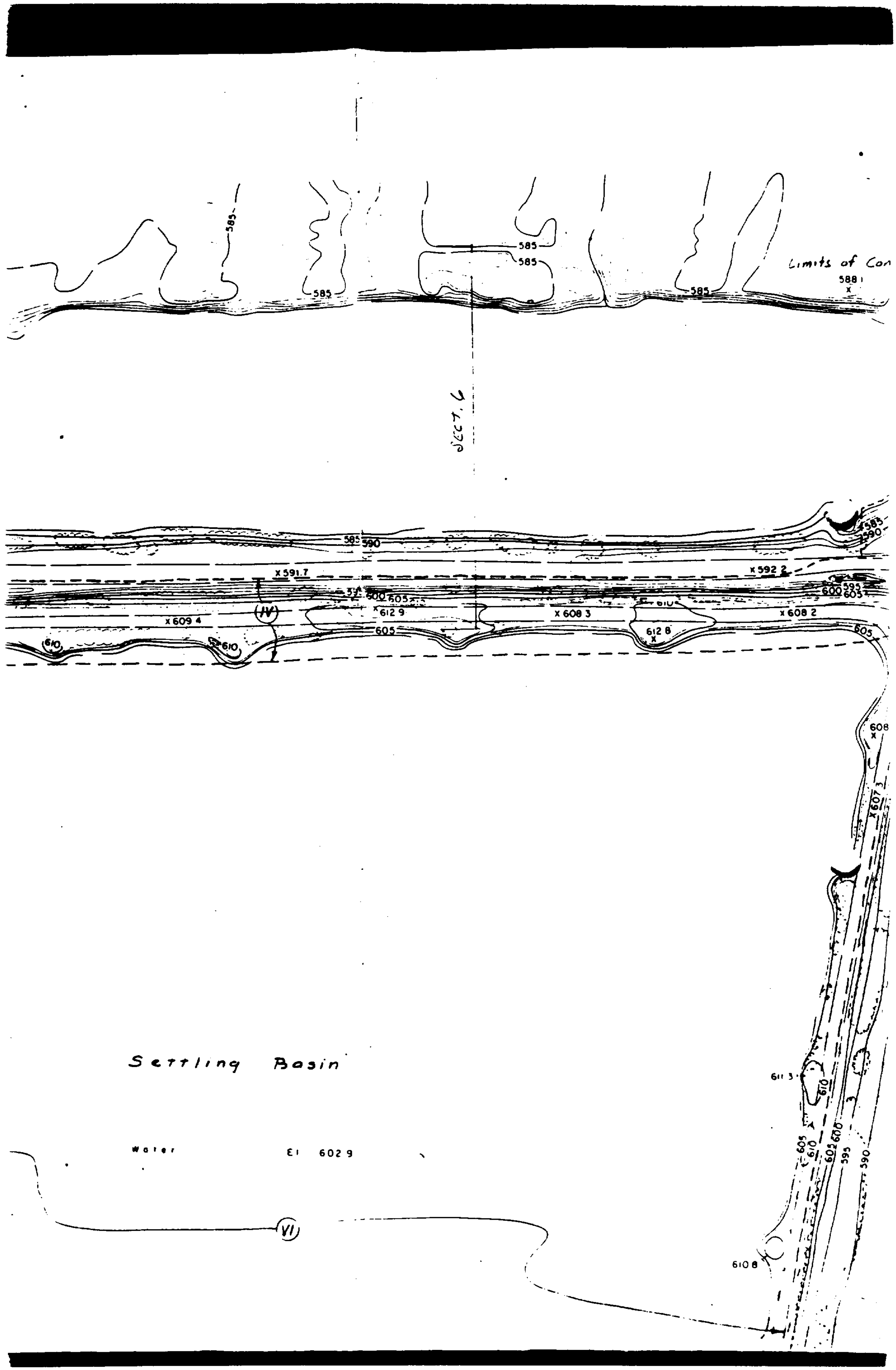

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SECT. 6
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x 592.2
x 609.4
x 612.9
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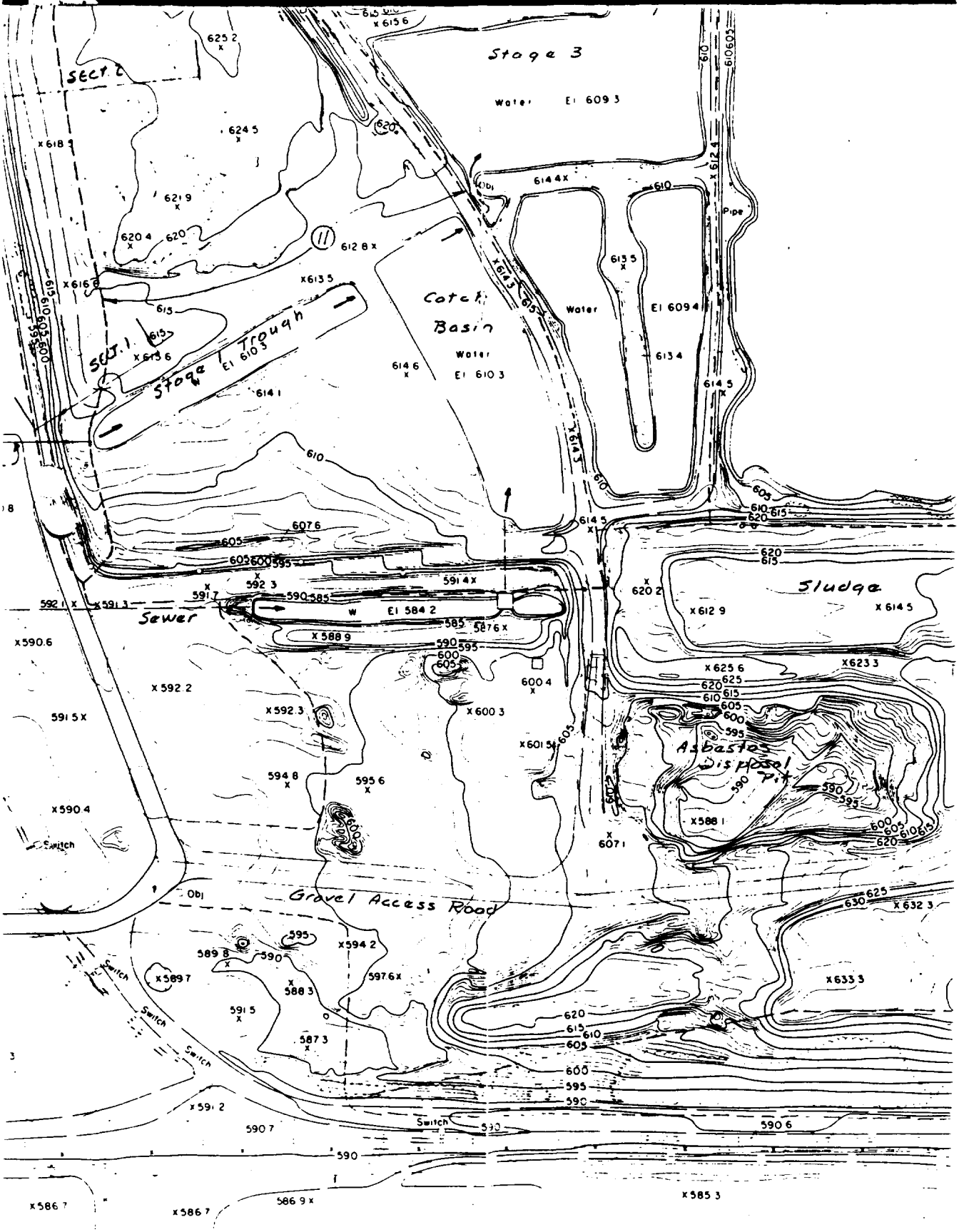
VI
IV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Catch Basin
Water
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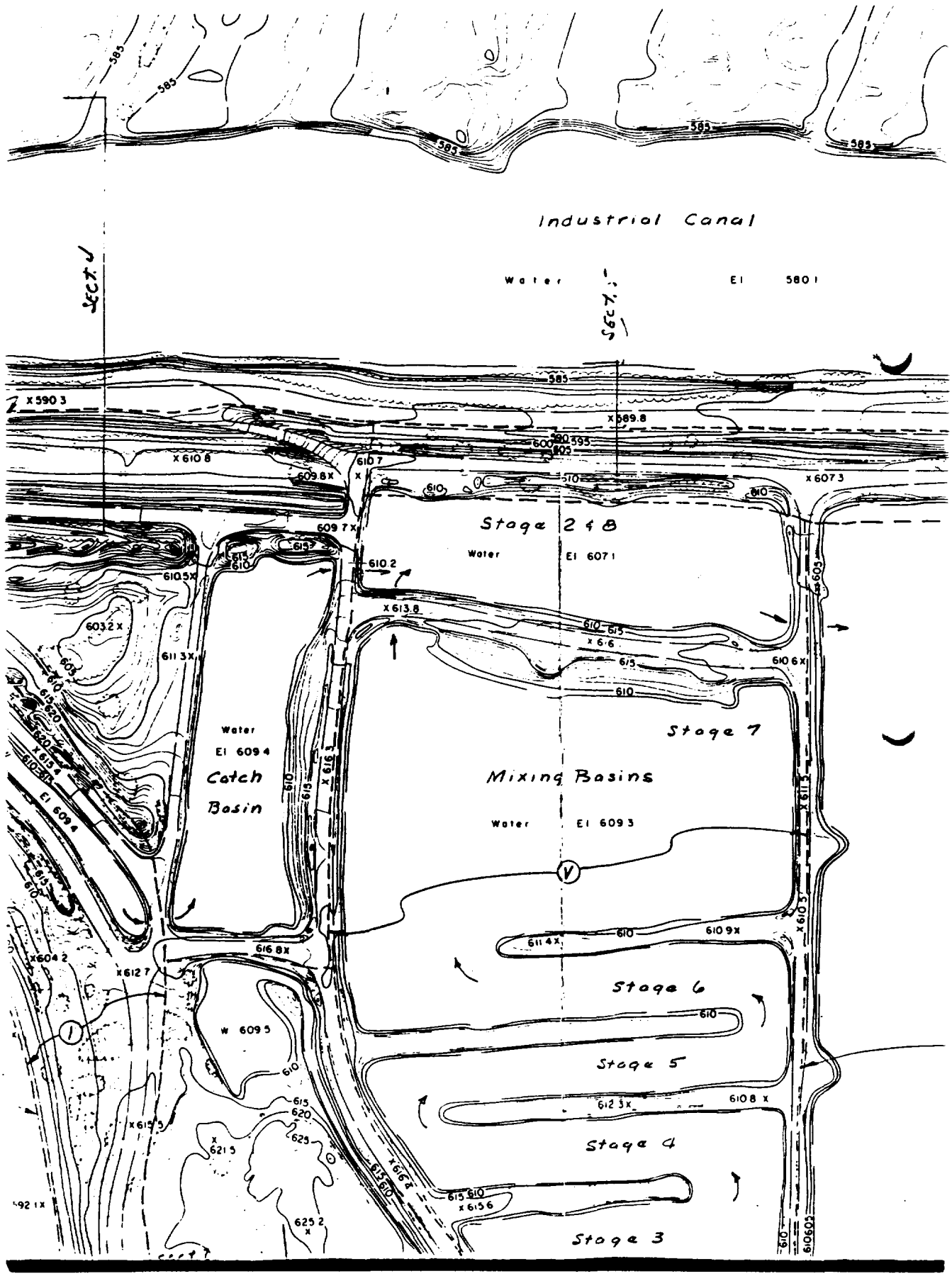
Obj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Sect I
Stage 2 & 8
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Stage 7
Mixing Basins
Water El 609 3
Water El 609 4
Catch Basin
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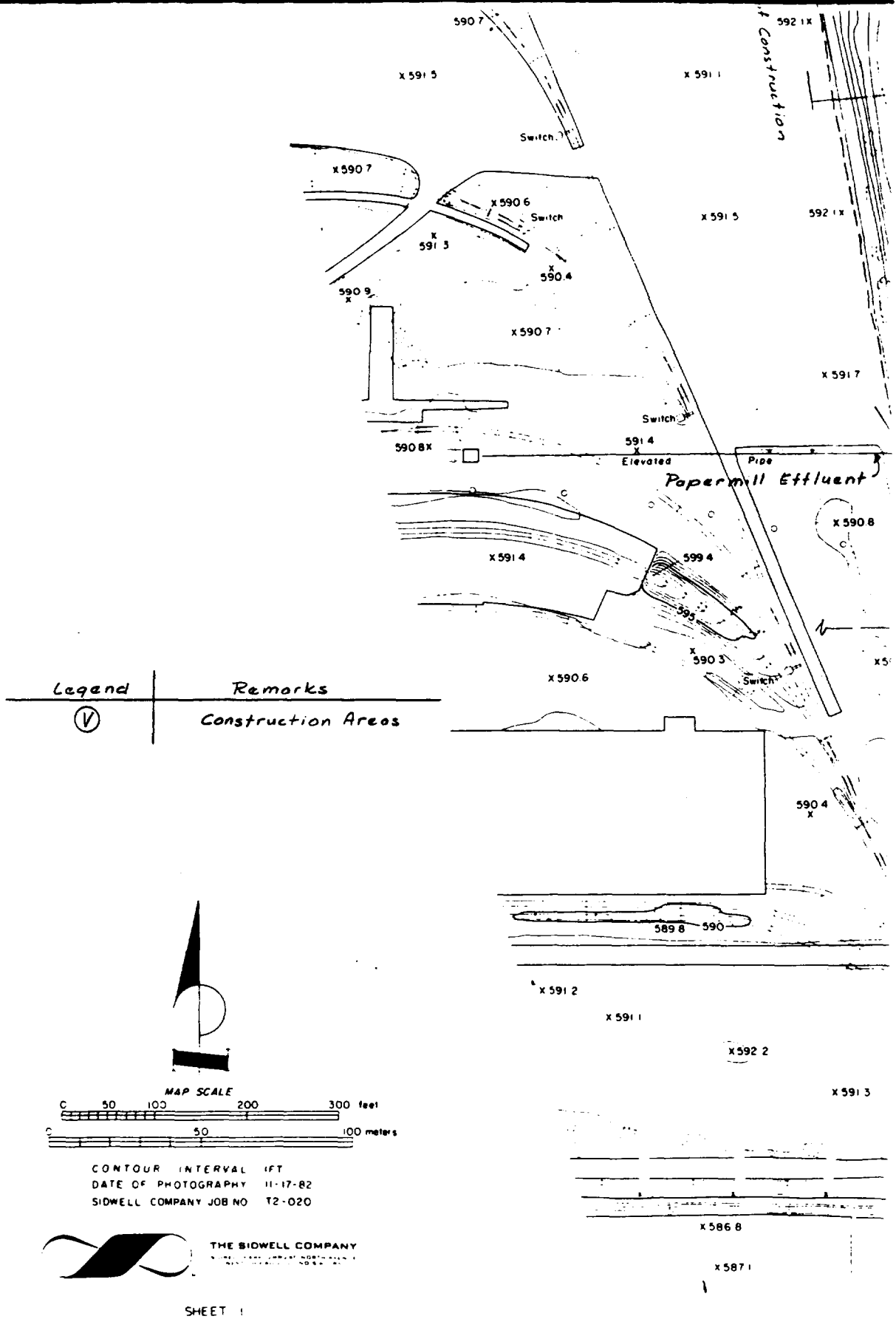
Stage 6
Stage 5
Stage 4
Stage 3
585
610
615
620
625


590.7
x591.5
x591.1
Switch
x590.7
x590.6
Switch
x591.5
592.1x
591.3
590.4
590.9
x590.7
x591.7
Switch
590.8x
591.4
Elevated
Pipe
Papermill Effluent
x590.8
x591.4
599.4
595
590.3
Switch
x590.6
590.4
589.8
590
x591.2
x591.1
x592.2
x591.3
x586.8
x587.1
Legend
Remarks
V
Construction Areas
MAP SCALE
0 50 100 200 300 feet
0 50 100 meters
CONTOUR INTERVAL 1FT
DATE OF PHOTOGRAPHY 11-17-82
SIDWELL COMPANY JOB NO T2-020
THE SIDWELL COMPANY

SHEET 1

MATCH SHEET 2